

**What is Claimed is:**

1. A self-adhering underlayment for tile roofing assemblies comprising:  
a dual-compound composite sheet having a carrier sheet with a front side and a back side, the carrier sheet being sandwiched between a top layer and a bottom layer:  
the top layer comprised of a mixture of: (a) polypropylene modifiers comprised of isotactic polypropylene, ethylene-propylene copolymer, atactic polypropylene and polyethylene, (b) filler, and (c) asphalt;  
the bottom layer comprised of heat-and-pressure activated self-adhesive compound comprised of a mixture of: (a) styrene-butadiene-styrene copolymer, (b) styrene-isoprene-styrene copolymer, (c) hydrocarbon tackifying resins, and (d) asphalt; and  
the top and bottom layers forming oppositely facing upper and lower surfaces.
2. A self-adhering underlayment as described in Claim 1, wherein:  
the first top layer is comprised of a mixture of: (a) 5% to 25% polypropylene modifiers comprised of isotactic polypropylene, ethylene-propylene copolymer, atactic polypropylene and polyethylene, (b) 0% to 70% of filler, and (c) 45% to 77% asphalt; and  
the second bottom layer of heat-and-pressure activated self-adhesive compound is comprised of a mixture of: (a) 3% to 10% styrene-butadiene-styrene copolymer, (b) 4% to 11% styrene-isoprene-styrene copolymer, (c) 20% to 33% hydrocarbon tackifying resins, and (d) remainder asphalt.
3. A self-adhering underlayment as described in Claim 2, wherein:  
the hydrocarbon tackifying resins in the bottom layer compound is primarily Polyvinyl Butyral.

4. A self-adhering underlayment as described in Claim 3, wherein:  
the top layer has a surface feature selected from the group consisting of:
  - (a) a stitch-bonded fabric carried by said top layer,
  - (b) granules carried by said top layer, and
  - (c) a film applied to said top surface, said film having an anti-skid upper surface.
5. A self-adhering underlayment as described in Claim 1, wherein:  
said filler is selected from the group consisting of: limestone, talc, fly ash, volcanic ash, graphite, carbon black, silica, china clay, fire retardants and combinations thereof.
6. A self-adhering underlayment as described in Claim 5, wherein:  
the Atactic Polypropylene top layer compound is further comprised of fire retardant filler additives selected from the group consisting of calcium borate, magnesium borate, a mixture of antimony tri-oxide and deca bromo diphenyl oxide.
7. A self-adhering underlayment as described in Claim 1, wherein:  
the Atactic Polypropylene top layer compound contains a tackifying resin.
8. A self-adhering underlayment as described in Claim 1, wherein:  
a surfacing agent is at least partly imbedded in the upper surface of the composite.
9. A self-adhering underlayment as described in Claim 8, wherein:  
the surfacing agent is selected from the group consisting of stitch-bonded polypropylene fabric and a granular material.
10. A self-adhering underlayment as described in Claim 1, wherein:  
a release liner having a contact and non-contact surface is applied to the lower surface of the composite; and

the release liner is a polyester, polypropylene or polyethylene film having a siliconized contact surface and a white color non-contact surface.

11. A self-adhering underlayment as described in Claim 1, wherein:

a side lap having a width of 3 inches to 4 inches runs longitudinally along one lengthwise edge of the composite; and

an end lap having a width of 4 inches to 6 inches runs widthwise along one end of the composite.

12. A self-adhering underlayment as described in Claim 12, wherein:

a release film is applied to the side lap and end lap.

13. A self-adhering underlayment as described in Claim 1, wherein:

a surfacing agent comprised of a granular material is at least partly imbedded in the upper surface of the composite in areas other than said side and end laps.

14. A self-adhering underlayment as described in Claim 1, wherein:

said carrier is made of polyester.

15. A self-adhering underlayment as described in Claim 1, wherein:

said carrier is made of fiberglass.

16. A self-adhering underlayment as described in Claim 1, wherein:

said carrier is made of a material selected from the group consisting of polyester and fiberglass;

and a combination of polyester and fiberglass.

17. A self-adhering underlayment for tile roofing assemblies comprising:

a composite having a carrier sheet with a front side and a back side, the carrier sheet being sandwiched between a top layer and a bottom layer:

the top layer comprised of a mixture of polypropylene modifiers comprised of isotactic polypropylene, ethylene-propylene copolymer, atactic polypropylene and polyethylene, (b) filler, and (c) bitumen;

the bottom layer comprised of heat-and-pressure activated self-adhesive compound which is a mixture of: (a) styrene-butadiene-styrene copolymer, (b) styrene-isoprene-styrene copolymer, (c) hydrocarbon tackifying resins, (d) and asphalt; and

the top and bottom layers forming oppositely upper and lower surfaces,

said top layer having a surface feature selected from the group consisting of:

- (a) a stitch-bonded fabric carried by said top layer,
- (b) granules carried by said top layer, and
- (c) a film applied to said top surface.

18. A self-adhering underlayment as described in Claim 17, wherein:

said granules extend over substantially the entire area of the upper surface of said top layer, except for a granule-free side lap and a granule-free end lap.

19. A self-adhering underlayment as described in Claim 17, wherein:

the hydrocarbon tackifying resins in the bottom layer compound is primarily Polyvinyl Butyral.

20. A self-adhering underlayment as described in Claim 19, wherein:

the first top layer is comprised of a mixture of: (a) 5% to 25% polypropylene modifiers comprised of isotactic polypropylene, ethylene-propylene copolymer, atactic polypropylene and polyethylene, (b) 0% to 70% of filler, and (c) 45% to 77% asphalt; and

the second bottom layer of heat-and-pressure activated self-adhesive compound is

comprised of a mixture of: (a) 3% to 10% styrene-butadiene-styrene copolymer, (b) 4% to 11% styrene-isoprene-styrene copolymer, (c) 20% to 33% hydrocarbon tackifying resins, and (d) remainder asphalt.

21. A self-adhering underlayment as described in Claim 17, wherein:

said filler is selected from the group consisting of: limestone, talc, fly ash, volcanic ash, graphite, carbon black, silica, china clay, fire retardants and combinations thereof.

22. A self-adhering underlayment as described in Claim 21, wherein:

the Atactic Polypropylene top layer compound further contains a fire retardant filler additive selected from the group consisting of calcium borate, magnesium borate, a mixture of antimony tri-oxide and deca bromo diphenyl oxide.

23. A self-adhering underlayment as described in Claim 17, wherein:

the Atactic Polypropylene top layer compound further contains a tackifying resin.

24. A self-adhering underlayment as described in Claim 17, wherein:

a surfacing agent is at least partly imbedded in the upper surface of the composite.

25. A self-adhering underlayment as described in Claim 24, wherein:

the surfacing agent is a granular material.

26. A self-adhering underlayment as described in Claim 17, wherein:

a release liner having a contact and non-contact surface is applied to the lower surface of the composite; and

the release liner is a polyester, polypropylene or polyethylene film having a siliconized contact surface and a white color non-contact surface.

27. A self-adhering underlayment as described in Claim 17, wherein:

said top layer has a side lap having a width of 3 inches to 4 inches runs longitudinally along one lengthwise edge of the composite, said side lap being free of any surface agent carried by said top layer; and

said top layer has a granule-free an end lap having a width of 4 inches to 6 inches runs widthwise along one end of the composite, said end lap being free of any surface agent carried by said top layer.

28. A self-adhering underlayment as described in Claim 26, wherein:  
a release film is applied to the side lap and end lap.
29. A self-adhering underlayment as described in Claim 17, wherein:  
a surfacing agent comprised of a granular material is at least partly imbedded in the upper surface of the composite in areas other than said side and end laps.
30. A self-adhering underlayment as described in Claim 17, wherein:  
said carrier is made of polyester.
31. A self-adhering underlayment as described in Claim 17, wherein:  
said carrier is made of fiberglass.
32. A self-adhering underlayment as described in Claim 17, wherein:  
said carrier is made of a material selected from the group consisting of polyester and fiberglass and a combination of polyester and fiberglass.
33. A self-adhering underlayment for tile roofing assemblies comprising:  
a dual-compound composite sheet having a carrier sheet with a front side and a back side, the carrier sheet being sandwiched between a top layer and a bottom layer:  
the top layer comprised of a mixture of: (a) polypropylene modifiers comprised

of isotactic polypropylene, ethylene-propylene copolymer, atactic polypropylene and polyethylene, (b) filler, and (c) asphalt;

the bottom layer comprised of heat-and-pressure activated self-adhesive compound comprised of a mixture of: (a) styrene-butadiene-styrene copolymer, (b) styrene-isoprene-styrene copolymer, (c) hydrocarbon tackifying resins, and (d) asphalt; and

said filler being comprised of a material selected from the group consisting of: limestone, talc, fly ash, volcanic ash, graphite, carbon black, silica, china clay, fire retardants and combinations thereof,

said top layer having a surfacing agent at least partly imbedded in the upper surface of the composite,

a release liner applied to the lower surface of the composite,

a side lap running longitudinally along one lengthwise edge of the top layer of the composite; and

an end lap runs widthwise along one end of the composite.

a release film is applied to the side lap and end lap, and said a surfacing agent being partly imbedded in the upper surface of the composite in areas other than said side and end laps.

said carrier being made of a material selected from the group consisting of polyester and fiberglass and a combination of polyester and fiberglass.

34. A self-adhering underlayment as described in Claim 33, wherein:

the top layer compound further being comprised of at least one fire retardant filler additives selected from the group consisting of calcium borate, magnesium borate, a mixture of antimony tri-oxide and deca bromo diphenyl oxide.

35. A self-adhering underlayment as described in Claim 33, wherein:  
the top layer compound is further comprised of tackifying resins.
36. A self-adhering underlayment as described in Claim 33, wherein:  
the top layer compound is further comprised of 0% to 2% tackifying resin.
37. A self-adhering underlayment as described in Claim 33, wherein:  
the release liner is a polyester, polypropylene or polyethylene film having a siliconized contact surface and a white color non-contact surface.
38. A self-adhering underlayment as described in Claim 33, wherein:  
the surfacing agent is selected from the group consisting of stitch-bonded polypropylene fabric and a granular material.